Target Heart Rate and Estimated Maximum Heart Rate

One way of monitoring physical activity intensity is to determine whether a person's pulse or heart rate is within the target zone during physical activity.

For moderate-intensity physical activity, a person's target heart rate should be 50 to 70% of his or her maximum heart rate. This maximum rate is based on the person's age. An estimate of a person's maximum age-related heart rate can be obtained by subtracting the person's age from 220. For example, for a 50-year-old person, the estimated maximum age-related heart rate would be calculated as 220 - 50 years = 170 beats per minute (bpm). The 50% and 70% levels would be:

- 50% level: 170 x 0.50 = 85 bpm, and
- 70% level: 170 x 0.70 = 119 bpm

Thus, moderate-intensity physical activity for a 50-year-old person will require that the heart rate remains between 85 and 119 bpm during physical activity.

For vigorous-intensity physical activity, a person's target heart rate should be 70 to 85% of his or her maximum heart rate. To calculate this range, follow the same formula as used above, except change "50 and 70%" to "70 and 85%". For example, for a 35-year-old person, the estimated maximum age-related heart rate would be calculated as 220 - 35 years = 185 beats per minute (bpm). The 70% and 85% levels would be:

- 70% level: 185 x 0.70 = 130 bpm, and
- 85% level: 185 x 0.85 = 157 bpm

Thus, vigorous-intensity physical activity for a 35-year-old person will require that the heart rate remains between 130 and 157 bpm during physical activity.

Taking Your Heart Rate

Generally, to determine whether you are exercising within the heart rate target zone, you must stop exercising briefly to take your pulse. You can take the pulse at the neck, the wrist, or the chest. We recommend the wrist. You can feel the radial pulse on the artery of the wrist in line with the thumb. Place the tips of the index and middle fingers over the artery and press lightly. Do not use the thumb. Take a full 60-second count of the heartbeats, or take for 30 seconds and multiply by 2. Start the count on a beat, which is counted as "zero." If this number falls between 85 and 119 bpm in the case of the 50-year-old person, he or she is active within the target range for moderate-intensity activity.

Adapted from www.cdc.org

Physical Activity for a Healthy Weight

On This Page

Why is physical activity important?

Regular physical activity is important for good health, and it's especially important if you're trying to lose weight or to maintain a healthy weight.

- When losing weight, more physical activity increases the number of calories your body uses for energy or "burns off." The burning of calories through physical activity, combined with reducing the number of calories you eat, creates a "calorie deficit" that results in weight loss.
- Most weight loss occurs because of decreased caloric intake. However, evidence shows the only way to *maintain* weight loss is to be engaged in regular physical activity.
- Most importantly, physical activity reduces risks of cardiovascular disease and diabetes beyond that produced by weight reduction alone.

Physical activity also helps to–

- Maintain weight.
- Reduce high blood pressure.
- Reduce risk for type 2 diabetes, heart attack, stroke, and several forms of cancer.
- Reduce arthritis pain and associated disability.
- Reduce risk for osteoporosis and falls.
- Reduce symptoms of depression and anxiety.

How much physical activity do I need?

When it comes to weight management, people vary greatly in how much physical activity they need. Here are some guidelines to follow:

To maintain your weight: Work your way up to 150 minutes of moderate-intensity aerobic activity, 75 minutes of vigorous-intensity aerobic activity, or an equivalent mix of the two each week. Strong scientific evidence shows that physical activity can help you maintain your weight over time. However, the exact amount of physical activity needed to do this is not clear since it varies greatly from person to person. It's possible that you may need to do more than the equivalent of 150 minutes of moderate-intensity activity a week to maintain your weight.

To lose weight and keep it off: You will need a high amount of physical activity unless you also adjust your diet and reduce the amount of calories you're eating and drinking. Getting to and staying at a healthy weight requires both regular physical activity and a healthy eating plan.

What do moderate- and vigorous-intensity mean?

Moderate: While performing the physical activity, if your breathing and heart rate is noticeably faster but you can still carry on a conversation — it's probably moderately intense. Examples include—

- Walking briskly (a 15-minute mile).
- Light yard work (raking/bagging leaves or using a lawn mower).
- Light snow shoveling.
- Actively playing with children.
- Biking at a casual pace.

Vigorous: Your heart rate is increased substantially and you are breathing too hard and fast to have a conversation, it's probably vigorously intense. Examples include—

- Jogging/running.
- Swimming laps.
- Rollerblading/inline skating at a brisk pace.
- Cross-country skiing.
- Most competitive sports (football, basketball, or soccer).
- Jumping rope.

How many calories are used in typical activities?

The following table shows calories used in common physical activities at both moderate and vigorous levels.

Calories Used per Hour in Common Physical Activities		
Moderate Physical Activity	**Approximate Calories/30 Minutes for a 154 lb Person[1]**	**Approximate Calories/Hr for a 154 lb Person[1]**
Hiking	185	370
Light gardening/yard work	165	330
Dancing	165	330
Golf (walking and carrying clubs)	165	330
Bicycling (<10 mph)	145	290
Walking (3.5 mph)	140	280
Weight lifting (general light workout)	110	220

Stretching	90	180
Vigorous Physical Activity	**Approximate Calories/30 Minutes for a 154 lb Person[1]**	**Approximate Calories/Hr for a 154 lb Person[1]**
Running/jogging (5 mph)	295	590
Bicycling (>10 mph)	295	590
Swimming (slow freestyle laps)	255	510
Aerobics	240	480
Walking (4.5 mph)	230	460
Heavy yard work (chopping wood)	220	440
Weight lifting (vigorous effort)	220	440
Basketball (vigorous)	220	440
[1]Calories burned per hour will be higher for persons who weigh more than 154 lbs (70 kg) and lower for persons who weigh less. Source: Adapted from Dietary Guidelines for Americans 2005, page 16, Table 4.		

To help estimate the intensity of your physical activity, see Physical Activity for Everyone: Measuring Physical Activity Intensity.

Want to learn more?

Getting Started with Physical Activity for a Healthy Weight
If you've not been physically active in a while, you may be wondering how to get started again. Lace up those sneakers and find some motivating ideas.

For general Physical Activity information, see Physical Activity for Everyone.

www.cdc.org

Overcoming Barriers to Physical Activity

Given the health benefits of regular physical activity, we might have to ask why two out of three (60%) Americans are not active at recommended levels.

Many technological advances and conveniences that have made our lives easier and less active, many personal variables, including physiological, behavioral, and psychological factors, may affect our plans to become more physically active. In fact, the 10 most common reasons adults cite for not adopting more physically active lifestyles are (Sallis and Hovell, 1990; Sallis et al., 1992)

- Do not have enough time to exercise
- Find it inconvenient to exercise
- Lack self-motivation
- Do not find exercise enjoyable
- Find exercise boring
- Lack confidence in their ability to be physically active (low self-efficacy)
- Fear being injured or have been injured recently
- Lack self-management skills, such as the ability to set personal goals, monitor progress, or reward progress toward such goals
- Lack encouragement, support, or companionship from family and friends, and
- Do not have parks, sidewalks, bicycle trails, or safe and pleasant walking paths convenient to their homes or offices.

Understanding common barriers to physical activity and creating strategies to overcome them may help you make physical activity part of your daily life.

Suggestions for Overcoming Physical Activity Barriers	
Lack of time	Identify available time slots. Monitor your daily activities for one week. Identify at least three 30-minute time slots you could use for physical activity.
	Add physical activity to your daily routine. For example, walk or ride your bike to work or shopping, organize school activities around physical activity, walk the dog, exercise while you watch TV, park farther away from your destination, etc.
	Select activities requiring minimal time, such as walking, jogging, or stair climbing.
Social influence	Explain your interest in physical activity to friends and family. Ask them to support your efforts.
	Invite friends and family members to exercise with you. Plan social activities involving exercise.
	Develop new friendships with physically active people. Join a group,

	such as the YMCA or a hiking club.
Lack of energy	Schedule physical activity for times in the day or week when you feel energetic.
	Convince yourself that if you give it a chance, physical activity will increase your energy level; then, try it.
Lack of motivation	Plan ahead. Make physical activity a regular part of your daily or weekly schedule and write it on your calendar.
	Invite a friend to exercise with you on a regular basis and write it on both your calendars.
	Join an exercise group or class.
Fear of injury	Learn how to warm up and cool down to prevent injury.
	Learn how to exercise appropriately considering your age, fitness level, skill level, and health status.
	Choose activities involving minimum risk.
Lack of skill	Select activities requiring no new skills, such as walking, climbing stairs, or jogging.
	Take a class to develop new skills.
Lack of resources	Select activities that require minimal facilities or equipment, such as walking, jogging, jumping rope, or calisthenics.
	Identify inexpensive, convenient resources available in your community (community education programs, park and recreation programs, worksite programs, etc.).
Weather conditions	Develop a set of regular activities that are always available regardless of weather (indoor cycling, aerobic dance, indoor swimming, calisthenics, stair climbing, rope skipping, mall walking, dancing, gymnasium games, etc.)
Travel	Put a jump rope in your suitcase and jump rope.
	Walk the halls and climb the stairs in hotels.
	Stay in places with swimming pools or exercise facilities.
	Join the YMCA or YWCA (ask about reciprocal membership agreement).
	Visit the local shopping mall and walk for half an hour or more.
	Bring your mp3 player your favorite aerobic exercise music.
Family obligations	Trade babysitting time with a friend, neighbor, or family member who also has small children.
	Exercise with the kids-go for a walk together, play tag or other running games, get an aerobic dance or exercise tape for kids (there are several on the market) and exercise together. You can spend time together and still get your exercise.

	Jump rope, do calisthenics, ride a stationary bicycle, or use other home gymnasium equipment while the kids are busy playing or sleeping.
	Try to exercise when the kids are not around (e.g., during school hours or their nap time).
Retirement years	Look upon your retirement as an opportunity to become more active instead of less. Spend more time gardening, walking the dog, and playing with your grandchildren. Children with short legs and grandparents with slower gaits are often great walking partners.
	Learn a new skill you've always been interested in, such as ballroom dancing, square dancing, or swimming.
	Now that you have the time, make regular physical activity a part of every day. Go for a walk every morning or every evening before dinner. Treat yourself to an exercycle and ride every day while reading a favorite book or magazine.

Content in the "Personal Barriers" section was taken from *Promoting Physical Activity: A Guide for Community Action* (USDHHS, 1999).